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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,626	10/29/2003	Bala Ramachandran	03SKY0003	5553

24504 7590 12/11/2007
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EXAMINER	
WONG, LINDA	

ART UNIT	PAPER NUMBER
2611	

MAIL DATE	DELIVERY MODE
12/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/696,626	RAMACHANDRAN ET AL.
	Examiner	Art Unit
	Linda Wong	2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 28 September 2007.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-33 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-33 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Response to Arguments

1. Applicant's arguments filed 9/28/2007 have been fully considered but they are not persuasive.

   a. Regarding **claims 1,11,21**, the applicant contends

> The Office Action acknowledges that "Yan et al fails to disclose 'selectively filtering the first and second baseband signal, wherein selective filtering comprises selecting different filtering bandwidths'." (Office Action, page 6). But, the Office Action alleges that "Isberg et al discloses such a limitation." (Office Action, page 6). However, *Isberg* provides:
>
> In accordance with the direct conversion principle, *the frequencies of the signals output by mixers 40a, b and 41a, b are within the same frequency range as the bandwidth of the received signals.* Thus, oscillators 36a and 36b are in the same frequency range as the received signals, although *the first and second bands can have different bandwidths.* As a result of the direct conversion principle, many hardware components of the receiver can be re-used, since there is no conversion of signals to an intermediate frequency outside of the frequency range of the bandwidth of the received signals ....
>
> The in-phase (I) signals and quadrature (Q) signals output by the selected processing unit are provided to an in-phase low pass filter 42a and a quadrature low pass filter 42b, respectively. ***These low pass*** filters 42a and 42b **preferably have programmable bandwidths to enable the receiver to accommodate two bands having different bandwidths.** The filtered I and Q signals are then passed to baseband processing circuitry 44, which can be conventional baseband processing circuitry as is well-known in the art. It will be appreciated that since direct conversion avoids the use of intermediate frequencies outside of the range of the received signals, the signals output by processing units 32a and 32b can be filtered in low pass filters rather than band pass filters .... (*Isberg,* column 3, lines 34-57, emphasis added). Even assuming, *arguendo,* that *Isberg* teaches low pass filters programmed for two different bandwidths, *Isberg* does not teach either ***"selectively*** filtering ... the first **and second baseband signals" or *"selecting different*** filtering bandwidths ... **based on which system baseband signal is to be processed."** Thus, *Yan* in view of/sberg does not teach or suggest *"selectively filtering ... the first **and second baseband signals, wherein selectively** filtering ... **comprises selecting different** filtering bandwidths ... **based on which system baseband signal is to be processed'*** as recited in claim 1.

The examiner respectfully disagrees. Yan et al dislcoses "low pass filters 42a and 42b preferably have programmable bandwidths to enable the receiver to accommodate two bands having different bandwidths." In implementation, programmable bandwidths of the low pass filters imply selection is performed to

determine the bandwidth in which the low pass filters will be programmed.

Thus, Yan et al discloses the recited limitation.

b. The applicant further contends

The Office Action appears to allege that *Yan* discloses "selectively DC-offset correcting the first and second baseband signals ... wherein selectively DC-offset correcting comprises selecting different DC-offset correcting bandwidths based on which system baseband signal is to be processed" (Office Action, page 5). However, *Yan* provides:

Prior to baseband processing, the differential in-phase and quadrature signals, I+, I-, Q+ and Q- are preferably filtered with filters 50A-50D, respectively, and amplified with amplifiers 52A and 52B to a desired signal level. As illustrated, *the relative DC levels of each of the differential in-phase and quadrature signals,* I+, I-, Q+, and Q- *are monitored by DC correction circuitry* 56. The *DC correction circuitry determines the relative DC levels for the differential in-phase and quadrature signals,* I+, I-, Q+, and Q- *and provides corresponding level adjustment outputs to adjust the DC levels of the individual differential in-phase and quadrature signals,* I+, I-, Q+, and Q-. Each level adjustment output is summed with the corresponding one of the differential in-phase and quadrature signals, I+, I-, Q+, and Q- to effect DC offset correction using summing circuitry 54A-54D. The *DC offset correction operates to force the DC levels of the differential in-phase signals* I+ and I- *to a common level, and the DC levels of the differential quadrature signals* Q+ and Q- *to a common level* to reduce or eliminate distortion caused by having a DC offset between the respective differential signals.

As noted, the present invention incorporates a dummy LNA 40E ... The dummy LNA 40E has a differential input coupled to a resistive network, illustrated as comprising resistors 66A-66C. *During DC offset correction, the resistive network provides a selectable resistance across the differential input of the dummy LNA 40E.* The selected resistance is chosen to emulate the impedance that is normally presented to the differential input of one of the LNAs 40A-40D associated with the communication band that is going to be used for receiving the incoming signal. The selected resistance will correlate to the equivalent resistance at the output of the corresponding filter 38A-38D. Thus, the resistance reflects that provided by the corresponding one of the filters 38A-38D and any other residual resistance provided by elements between the input of the LNAs 40A-40D and the receive leg of the TX/RX switch 28 .... Those skilled in the art will recognize various types of selectable resistive networks capable of controlling the resistance provided across the differential input of the dummy LNA 40E.

For controlling DC offset correction according to the disclosed embodiment, *control logic,* represented by the control system 32, *will ... select the resistor(s) to place across the differential input of the dummy LNA 40E* using a load control signal 62, and control the DC correction circuitry 56 using a DC correction control signal 64 .... The load control signal 62 may be used to selectively switch on the one or more transistor pairs 68-70, 72-74, and 76-78 to couple an appropriate resistance to the input of the dummy LNA 40E. The DC correction control signal 64 will preferably control when the DC correction circuitry 56 will operate to adjust the DC voltage levels of the differential in-phase and quadrature signals, I+, I-, Q+, and Q-. *(Yan,* column 5, line 22 to column 6, line 22, emphasis added). Even assuming, *arguendo,* that *Yan* teaches either DC correction circuitry monitoring the differential in-phase and quadrature signals and adjusting the signals to force DC levels to a common level or control logic selecting input resistance to a dummy LNA, *Yan* does not teach *"selecting ... different DC-offset correcting bandwidths based on which system baseband signal is to be processed'* as recited in claim 1.

The examiner respectfully disagrees. Yan discloses "The DC offset correction operates to force the DC levels of the differential in-phase signals I+ and I- to a common level and the DC levels of the differential quadrature signals Q+ and Q- to a common level to reduce or eliminate distortion caused by having a DC offset between the respective differential signals." Depending on the offset of the input baseband signal as shown in Fig. 1, labels I+, I-, Q+ and Q-, the DC correction signal would perform an adjustment to provide a common level between Q+, Q- and I+, I-. In implementation, it is implied that the DC correction circuitry will perform a selection or choice in order to determine the amount of adjustment, depending on the baseband signal inputted, needed to provide a common level as discussed in the prior art. Thus, Yan discloses the recited limitation.

c. Regarding **claims 2-10,12-20,22-27**, such claims depend on independent claims 1,11,21. Please refer to the rebuttal of claims 1,11, and 21, respectively.

d. Regarding **claim 28**, the applicant contends

Applicants' claim 28 provides as follows (emphasis added):
A multi-mode receiver system, comprising: a code-division multiple access system having a common baseband system, wherein the common baseband system includes a direct current (DC)-correction element configured to include switchable bandwidths; and a digital-broadcast system that shares the common baseband system with the code-division multiple access system. Applicants respectfully submit that the rejections to claim 28 have been rendered moot. In reference to claim 30, the Office Action appears to allege that Peterzell discloses "the DC-correction element ... configured to include switchable bandwidths" (Office Action, page 10). The Office Action alleges that "Peterzell et al discloses in Fig. 3 .... label I Channel DC offset correction and Q Channel DC offset correction is inputted in to labels 105 and 100, which indicates the bandwidth or gain is adjusted depending on the labels I and Q Channel DC offset correction." (Office Action, pages 10-11). However, in reference to FIG. 3, Peterzell provides "To support multiple bands and modes of operation, receiver 101 must include some mode-specific components. For instance, in a multi-band receiver, an individual RF signal path is typically required for each frequency band." (Peterzefl, column 4, lines 34-37). Even assuming,

arguendo, that Peterzefl teaches individual signal paths for each frequency band, Peterzefl does not disclose or suggest "a DC-correction element configured to include switchable bandwidths" as recited in claim 28.

In addition, the Office Action alleges that *Peterzell* "discloses the adjustable LO drive level can change DC offsets, wherein the DC offset must be removed before demodulation. Since the LO is adjustable and causes DC offset, an adjustable DC offset correction would be needed to compensate for the adjustable LO caused offset." (Office Action, page 11).

However, *Peterzell* provides:

LO 350 may comprise a ***frequency generator that may generate output signals at various frequencies.*** For instance, LO 350 may output a first signal and a second signal that is phase-shifted from the first signal by 90.degree. LO 350 may include a phase-locked loop (PLL), a voltage controlled oscillator (VCO), a frequency mixing mechanism, and a phase shifting mechanism. ***LO 350 may include a band select 354 that controls LO 350 depending on an operating frequency of received** RFsignals.* In an exemplary embodiment, LO 350 uses differential paths to mitigate LO leakage and noise coupling to and from the signal paths at the I and Q mixer RF ports.

FIG. 7 is a graph plotting mixer RF to LO isolation versus LO drive level in a receiver. As shown, the mixer RF to LO isolation is not linear, and depends on LO drive level. In an exemplary implementation, the LO drive level of a receiver may be varied or fixed at higher levels to improve isolation. Accordingly, the jammer leakage level at the LO port of the receiver may be suppressed. When no jammers are present, the LO drive level may be lowered. It is to be noted that, ***relative to an adjustable LO drive level, an LO drive level fixed at higher levels (>+10 dBm) leads to higher current consumption and conducted LO leakage.*** **However, *because the DC output of the LO I and Q channel mixers is related to the LO leakage, varying the LO drive level changes the DC offset.*** Therefore, the DC offset may need to be removed before baseband signals may be demodulated. Other mixer performance parameters may also vary as a function of LO drive level limiting the range of adjustment. A mixer's noise figure and its IIP2 and IIP3 specifications may degrade if the LO drive level is varied over a wide range.

The ***drive level of the LO signal may be adjusted by varying the gain*** of buffer amplifier 851 via a LO drive adjust control signal 921 (LO_PWR). *(Peterzell,* column 9, lines 26-37; column 10, lines 41-59; and column 12, lines 44-46; emphasis added). Even assuming, *arguendo,* that *Peterzell* teaches selecting LO frequencies and varying the gain (dB) of the LO signal, *Peterzell* does not teach "a ***DC-correction element configured to include switchable bandwidths"*** as recited in claim 28. The addition of Digital Video Broadcasting (pages 1-6) and IEEE 802.1 la Standards (pages 3-7) does not overcome this limitation. Thus, *Peterzell* in view of Digital Video Broadcasting in further view of IEEE 802.1 la Standards fails to teach or suggest "a *direct current (DC)-correction element configured to include switchable bandwidths"* as recited in claim 28.

The Office Action also appears to allege that claim 30 is unpatentable over *Yan* in view of Digital Video Broadcasting in further view of IEEE 802.1 la Standards. (Office Action, page 12). However, the Office Action does not specifically address the elements of claim 30. Even assuming, *arguendo,* that the rejection is similar to those for claims 1, 11, and 21, *Yan* does not teach *"**selecting** ... **different DC-offset correcting bandwidths based on which system baseband** signal is to be processed'* as described above in reference to claim 1. Thus, *Yan* fails

to teach or suggest *"a DC-correction element configured to include **switchable bandwidths.**"* The addition of Digital Video Broadcasting (pages 1-6) and IEEE 802.11a Standards (pages 3-7) does not overcome this limitation. Thus, *Yan* in view of Digital Video Broadcasting in further view of IEEE 802.11a Standards fails to teach or suggest "a *direct current (DC)-correction element configured to include switchable bandwidths"* as recited in claim 28.

For at least the reasons described above, the cited references, individually or in combination, fail to disclose, teach or suggest all of the features recited in claim 28. Therefore, Applicants respectfully request that the rejection of claim 28 be withdrawn.

Because independent claim 28 is allowable over *Peterzell* in view of Digital Video Broadcasting in further view of IEEE 802.11a Standards and *Yan* in view of Digital Video Broadcasting in further view of IEEE 802.1 la Standards, dependent claims 29-33 are allowable as a matter of law for at least the reason that the dependent claims 29-33 contain all elements of their respective base claim. See, *e.g., In re Fine,* 837 F.2d 1071 (Fed. Cir. 1988). Therefore, Applicants respectfully request that the rejection of claims 29-33 be withdrawn.

The examiner respectfully disagrees. As per the paragraph as discussed in the applicant's remarks, Yan discloses adjusting the LO drive level by varying the gain of the buffer amplifier, which in turn adjust the DC level. The limitation recites "a direct current (DC)-correction element configured to include switchable bandwidths." The examiner interprets the term “switchable bandwidths” as the bandwidth of the DC offset is switched or adjusted or changed from a current level to a new level. In implementation, the LO drive level is set to one level during a particular procedure and then altered or adjusted when the gain of the amplifier is varied. In the process of altering or adjusting the LO drive level, switching is implied by switching or changing the LO drive level from the current level to a new level. Thus, Peterzell discloses the recited limitation.

e. Regarding **claims 6,7,10,15,17,19,29,31-33**, such claims depend on independent claims 1 and 28. Please refer to the rebuttal of claims 1 and 28, respectively.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yan et al (US Patent No.: 6816718) in view of Isberg et al (US Patent No.: 6029052).

   a. **Claims 1,11,21**,

      i. Yan et al discloses

         - "means for transmitting signals" (Fig. 1, labels 24 and 28)
         - "converting a first signal based on a first system to a first baseband signal" (Fig. 1, input to one of labels 40A-D as the first signal, one of labels 40A-D as the first system and outputs Q-,I- as the first baseband signals, wherein label 42 converts the first signal into baseband signals depending on the mode (Col. 4, lines 40-62))
         - "converting a second signal based on a second system to a second baseband signal" (Fig. 1, input to one of labels 40A-D as the second signal,

one of labels 40A-D as the second system and outputs Q+,I+ as the second baseband signals, wherein label 42 converts the second signal into baseband signals depending on the mode (Col. 4, lines 40-62))

- "processing the first baseband signal using baseband components" (Fig. 1, labels 50A-D,52A-B,56,54A-D,and 30 processes the I+,I-,Q+,Q- signals)
- "processing the second baseband signal using the baseband components" (Fig. 1, labels 50A-D,52A-B,56,54A-D,and 30 processes the I+,I-,Q+,Q- signals)
- "processing the first baseband signal and the second baseband signal comprises filtering" (Fig. 1, labels 50A-D)
- processing the first baseband and second baseband signal comprises "selectively DC-offset correcting the first and second baseband signals" (Fig. 1, label 56, Col. 5, lines 22-42, lines 51-57, Col. 6, lines 4-12 describes a controllable DC-offset correction of the I-,Q- as the first baseband signal and I+,Q+ as the second baseband signal.)
- "wherein selectively DC-offset correcting comprises selecting different DC-offset correcting bandwidths based on which system baseband signal is to be processed" (Col. 5, lines 22-42 discloses "The DC correction circuitry determines the relative DC levels for the differential in-phase and quadrature signals, I+,I-,Q+,Q- and provides corresponding level adjustment outputs to adjust the DC levels of the individual differential in-phase and quadrature signals, I+,I-,Q+,Q-." Since the down converter

processes and outputs signals depending on the mode of the incoming signal (Col. 4, lines 47-52) and DC offset controller determines the relative DC levels of the I+,I-,Q+,Q- signals (Col. 5, lines 22-42), DC offset adjustment applied to the signals would be based on the mode of the signal. By adjusting the DC offset, the DC levels or bandwidths are adjusted.)

ii. Yan et al fails to disclose "selectively filtering the first and second baseband signal, wherein selective filtering comprises selecting different filtering bandwidths".

iii. Isberg et al discloses such a limitation. (Fig. 1-4, Fig. 5, label 42a-b, Col. 3, lines 45-50 discloses "these low pass filters 42a and 42b preferably have programmable bandwidths to enable the receiver to accommodate two bands having different bandwidths." The inputs to the filters are baseband signals as shown in Fig. 2, the output from label 12a and b. (Col. 3, lines 10-13))

iv. It would have been obvious to one skilled in the art at the time of the invention to provide selective filtering as disclosed by Isberg et al in Yan et al's invention so to accommodate for the incoming received signals having different bandwidths.

b. **Claims 2,14,22**, Yan et al discloses the first system and the second system each include at least one of the following systems US cellular, global system for mobile communications, and personal communication system. (Fig. 4, lines 25-26, Fig. 1, labels US cell, EGSM,DCS,PCS.)

c. **Claims 3,23**, Yan et al discloses the processing further includes at least one of filtering (Fig. 1, labels 38A-D), amplifying (Fig. 1, labels 40A-D), providing sampling and correcting for direct current (DC) offset (Fig. 1, label 56).

d. **Claims 4,24**, Yan et al discloses the processing includes processing in at least one of a digital domain and an analog domain (Col. 4, lines 60-62 discloses the baseband processor 30 is generally implemented in one or more digital signal processors (DSPs)" which indicates an analog to digital converter can be found within the digital signal processor so the DSP can operate digitally.).

e. **Claims 5,16,25**, Yan et al discloses the processing includes configuring at least one of the baseband components for a first frequency response characteristic for the first baseband signal and configuring the at least one of the baseband components for a second frequency response characteristic for the second baseband signal" (Yan et al discloses a multi-mode receiver processing modes at different frequencies, wherein each mode inherently has different frequency response characteristics (Fig. 1, labels 40a-d, Col. 4, lines 25-26, Col. 1, lines 14-32)

f. **Claims 6,7,10,15,17,19**, Yan et al discloses a baseband processor comprising DC offset correction (Fig. 1, label 56), filters (Fig. 1, labels 50a-d, wherein filtering can be low pass, all pass, FIR since such filters are well known in the art and can be used to perform the functionality of filtering, wherein the filter is chosen based on the inventor's choice and which would produce the output as

desired by the inventor), amplification (Fig. 1, labels 52a-b), analog to digital converter (Col. 4, lines 60-62 discloses the baseband processor 30 is generally implemented in one or more digital signal processors (DSPs)" which indicates given an analog signal is inputted to the baseband processor, an analog to digital converter can be found within the digital signal processor so the DSP can operate digitally.)

a. **Claims 8,20,27**, Yan et al discloses a plurality of different modes or systems (Fig. 1, labels 40a-d) The system as shown in Fig. 1 would receive plurality of signals, since the receiver continuously receives signals produced from any of the types of systems.

g. **Claim 9,18,26,** Yan et al discloses the baseband processor, label 30, "implemented in one of more digital signal processors", which indicates given an analog signal is inputted to the baseband processor, an analog to digital converter can be found within the digital signal processor so the DSP can operate digitally. Since I+,I-,Q+ and Q- signals are adjusted based on the mode of the received signal, the signals would be sampled at a rate determined by Nyquist matching the mode of the signal.

h. **Claim 12**, Yan et al discloses "a downconverter that is configured to convert a first signal to the first baseband signal and a second signal to the second baseband signal". (Fig. 1, label 42 and Col. 4, lines 40-52)

i. **Claim 13**, Yan et al discloses "a first downconverter and a second downconverter, the first downconverter configured to convert a first signal to the

first baseband signal, the second downconverter configured to convert a second signal to the second baseband signal." (Col. 4, lines 40-62 discloses "The down-conversion circuitry 42 typically uses a one or more mixing frequencies generated by the frequency synthesizer 34 to effect quadrature down conversion." This indicates the down conversion circuitry would comprise at least one down converter for converting the I and Q signals as shown outputted in Fig. 1.)

1st Prior art Rejection for claims 28-33

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 28-33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterzell et al (US Patent No.: 6694129) in view of Digital Video Broadcasting (http://www.dvb.org) and further in view of IEEE 802.11a Standards.

   a. **Claim 28**, Peterzell et al discloses a multi-mode receiver processing CDMA signals as well as GPS, GSM, etc. using a common baseband processor. (Fig. 4, label 230 and Col. 7, lines 54-60) Peterzell et al does not disclose processing digital broadcasted signals, but Peterzell et al discloses the system

is compatable to process frequencies within a wireless LAN (802.11). (Col. 3, lines 30-40) Digital broadcasting system was produced in Europe based on OFDM, which is found in 802.11a. (Digital Video Broadcasting discloses in the history OFDM is the element of use and IEEE 802.11a Standards discloses OFDM as its type of modulation used.) Since Peterzell et al's invention can process frequencies within an 802.11 system, digital broadcasting system is based on OFDM and OFDM is found within an 802.11a system, Peterzell et al's invention can also process DBS signals. Furthermore, Peterzell et al discloses a system that can process digital and audio streams. (Col. 7, lines 54-60) Since a digital broadcast system would require a system to process digital signals, Peterzell et al's system can perform such functionalities.

b. **Claims 29 and 31,** Peterzell et al discloses a baseband processor comprising DC cancellation, matched and jammer filtering, which can be low-pass, all-pass, high-pass filters, finite-impulse response filters or smoothing filters, automatic gain controllers (AGC), and decoding into digital data or audio streams. (Col. 7, lines 54-60)

c. **Claim 30**, Regarding the limitation "low-pass filter and the DC-correction element are configured to include switchable bandwidths", Peterzell et al discloses in Fig. 3, labels mode select and 70 selective filtering depending on the mode, wherein each mode would inherently require a different filtering bandwidth. Fig. 3, label I Channel DC offset correction and Q Channel DC offset correction is inputted in to labels 105 and 100, which indicates the

bandwidth or gain is adjusted depending on the labels I and Q Channel DC offset correction. Furthermore, Col. 9, lines 30-35 discloses an adjustable LO 350 depending on the operation of the frequency and Col. 10, lines 41-59 discloses the adjustable LO drive level can change DC offsets, wherein the DC offset must be removed before demodulation. Since the LO is adjustable and causes DC offset, an adjustable DC offset correction would be needed to compensate for the adjustable LO caused offset.

d. **Claim 32**,

i. Peterzell et al discloses

- "at least one of the analog-to-digital, digital-to-analog converter, and the decimation filter" (Col. 7, lines 54-60)
- the components as stated above "is configured to have a first sampling rate for the code-division multiple access system and a second sampling rate for the digital-broadcast system" (Fig. 5, label 305, wherein the interface label 305 determines the type of mode a signal is being received in. Sampling the received signals at different sampling rates would be inherently since different modes would require different sampling rates due to the difference in frequency.)

e. **Claim 33**,

i. Peterzell et al discloses

- "at least one finite-impulse response filter, the DC correction element and the decimiation filter" (Col. 7, lines 54-60 and Fig. 3, label I and Q Channel DC offset correction)
- the components as stated above "is configured to operate at a first frequency response for the code-division multiple access system and a second frequency response for the digital-broadcast system" (Fig. 5, label 305, wherein the interface label 305 determines the type of mode a signal is being received in. Different frequency response would be inherently found for the different modes since each mode differs in frequency.)

2nd Prior art Rejection for claims 28-33

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 28-33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yan et al (US Patent No.: 6816718) in view of Digital Video Broadcasting (http://www.dvb.org) and further in view of IEEE 802.11a Standards.

   a. **Claim 28,**

i. Yan et al discloses

- "a code-division multiple access system having a common baseband system" (Col. 1, lines 14-33 discloses CDMA and Fig. 1, labels 50A-D,52A-B,56,54A-D,and 30 processes the I+,I-,Q+,Q- signals shows a common baseband system.)
- a different system "that shares the common baseband system with the code division multiple access system." (Fig. 1, labels 50A-D,52A-B,56,54A-D,and 30 processes the I+,I-,Q+,Q- signals shows a common baseband system, labels 40a-d shows the different types of modes.)

ii. Yan et al fails to disclose the term "a digital broadcasting system".

iii. Yan et al discloses "improved DC offset correction in a radio frequency receiver, which is capable of receiving signals using any number of communication technologies" (Col. 2, lines 37-40) and "Given the lack of standardization and the varying infrastructure for the above systems, mobile terminals, such as mobile telephone, personal digital assistants, wireless modems, and the like, often need to communicate in different bands and operate in different modes, depending on the type of transmission technology used." (Col. 1, lines 34-40) The disclosed section indicates Yan et al's invention can accommodate for "any number of communication technologies" including "wireless modems", wherein 802.11a is a type of "wireless modem".

iv. Digital broadcasting system was produced in Europe based on OFDM, which is found in 802.11a. (Digital Video Broadcasting discloses in the history

OFDM is the element of use and IEEE 802.11a Standards discloses OFDM as its type of modulation used.)

b. **Claims 29,31,32,33,** Yan et al discloses a baseband processor comprising DC offset correction (Fig. 1, label 56), filters (Fig. 1, labels 50a-d, wherein filtering can be low pass, all pass, FIR since such filters are well known in the art and can be used to perform the functionality of filtering, wherein the filter is chosen based on the inventor's choice and which would produce the output as desired by the inventor), amplification (Fig. 1, labels 52a-b), analog to digital converter (Col. 4, lines 60-62 discloses the baseband processor 30 is generally implemented in one or more digital signal processors (DSPs)" which indicates given an analog signal is inputted to the baseband processor, an analog to digital converter can be found within the digital signal processor so the DSP can operate digitally.)

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

6. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed,

and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linda Wong whose telephone number is 571-272-6044. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Linda Wong
11/29/2007

David Payne
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